

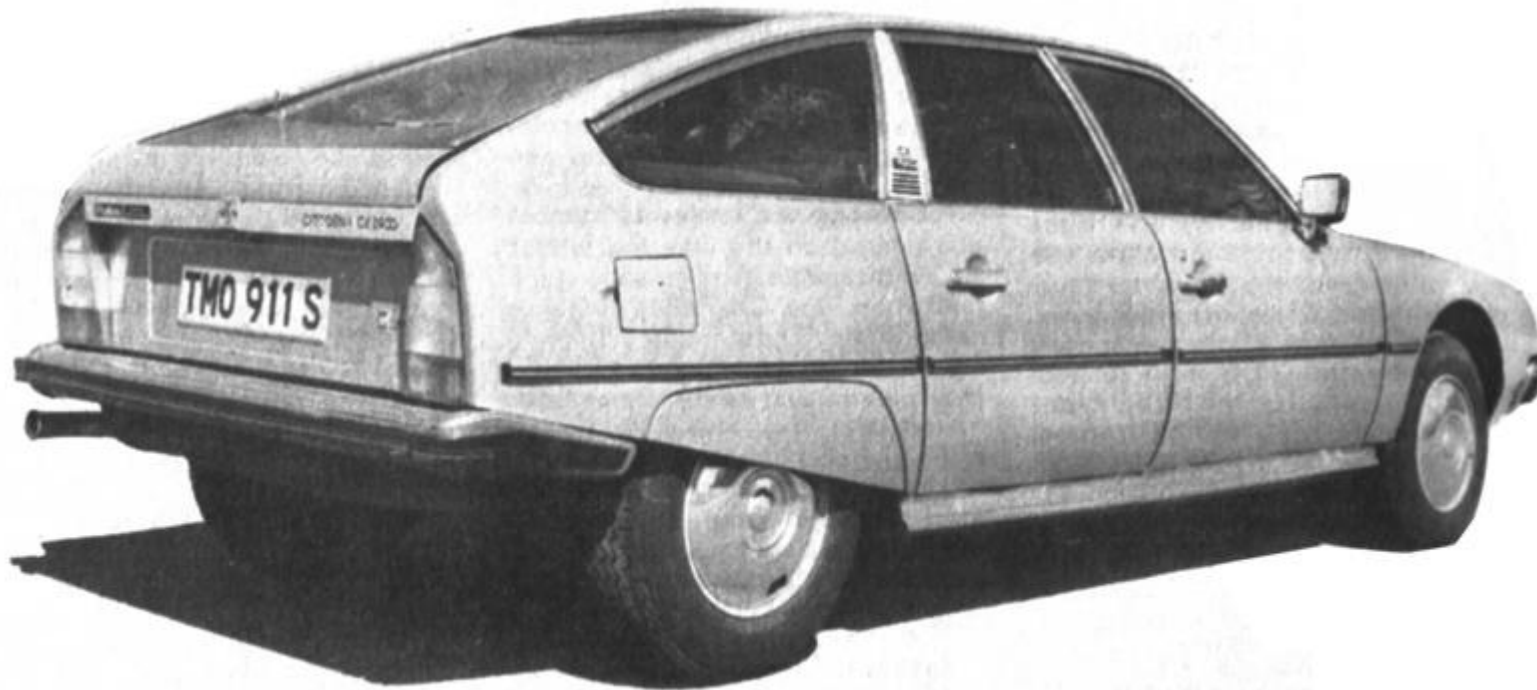
# Citroen CX Pallas C-matic Injection

Autotest of the futuristic Citroen CX with luxurious trim and fittings, fuel injection and Citroen's unusual automatic transmission

[Autocar](#) week ending 5 August 1978



**Three speed semi-automatic transmission suits CX character, giving surprisingly good and very relaxed performance  
Superb ride and leech-like road holding is matched by handling that needs getting used to.  
A very sophisticated and aerodynamically efficient car that suffers from poor ventilation.**



THERE ARE manufacturers who have developed the conventional car into an art form, but there is one that has also consistently committed itself to a path of innovative suspension design and aerodynamic efficiency. Citroen's often revolutionary approach allows (and demands) very long production runs. The 2CV is of course still going strong, while the CX range only began to replace the ID/DS after nearly 20 years' production. Admittedly the SM proved a little too adventurous to become popular, but it did serve as a watershed for the CX series.

The CX Pallas C-Matic Injection competes in the growing market for executive and up-market family cars, and while it comes near the top of the CX range in trim specification, engine tune, and price, it still falls between the cost of its most expensive competitor -- the Lancia Gamma, and say the Renault 30TS or Rover 2600. Only the Lancia shares the CX's fastback, non-hatchback concept.

Semi-automatic transmissions have been around for some time. The C-Matic simply goes one stage further by incorporating a torque converter behind the electrically triggered, but conventional clutch. Earlier C-Matic cars annoyingly had the switching gear in the gearlever knob, leaving one with no drive if the gearlever was inadvertently touched. The switching system has now been moved to the base of the gearlever and is only sensitive to any movement toward neutral - a much more satisfactory arrangement.

Mechanically the CX 2400 Pallas C-Matic Injection shares the most powerful all-electronic Bosch L Jetronic injected version of the 2,347 c.c. 93.5 x 85.5mm inclined four, with the GTI five-speed manual car. On a compression ratio of 8.75 to 1 it gives 128 bhp (DIN) at 4,800 rpm, and a hefty 145 lb. ft. torque (DIN) at 3,600 rpm. In fact an ideal power curve to mate to a semi-automatic three speed transmission.

Our Pallas C-Matic tipped the scales at 27.4 cwt at the kerb, a 0.6 cwt increase over the GTi tested in October last year. This is probably due to the higher standard of trim and heavier transmission. However the excellent aerodynamic qualities of the CX remain constant. A drag coefficient of 0.34 is untouchable by any other manufacturer, and mention is seldom made of the way in which Citroen use their "total concept" to obtain aerodynamic downforce without the aid of "add on" devices. Self levelling suspension enables a constant shaped venturi or low pressure area to be formed between the road and the very clean underside of the car, 'thereby creating some speed sensitive downforce – incidentally comfortably anticipating the Lotus 79 Grand Prix car by nearly four years. How much down force is not revealed, but it is characteristic of the company to turn what would normally be unwanted airflow to its advantage.

Interestingly we were able to conduct a rough back-to-back coasting test against a Lancia Gamma Berlina saloon (claimed drag co-efficient 0.37) and found that the Pallas took a mean 1.5 sec longer during the decay in velocity from 80 mph to 40 mph.

## Performance and economy

We have yet to come across a Bosch L Jetronic injected engine that does not start easily and run well from cold. The CX Pallas C-Matic Injection was no exception to the rule. Because of its torque converter, the C-Matic transmission has the advantage of allowing starts to be made in any gear, and with a total lack of fuss. Around town it becomes natural to select 2nd gear and leave well alone. Therein acceleration is adequate from rest, and yet up to 80 mph is available for overtaking or climbing steep slopes.

Comparison of performance with the manual five-speed CX 2400 GTi is difficult because the three gears on the C-Matic fall neatly between the five on the GTi. In spite of two fewer gears, the constant speed acceleration figures for the Pallas C-Matic suffer very little compared with those of the GTi, and lower down are actually improved thanks to the effectiveness of the torque converter, and well chosen ratios. For example while the manual GTi will accelerate from 30-50 mph in top in 10.9 sec, the C-Matic Pallas only takes 9.1 sec, and it is not



until over 60 mph that the admittedly slightly higher-g geared GTi can manage any improvement. Without labouring over times too much, it suffices to say that on the road it would take a very enthusiastic driver in a GTi to outperform the C-Matic Pallas. Only in straight line acceleration does the C-Matic show any real disadvantage. The manual GTi will accelerate from rest to 60 mph in 10.1 sec, and to 100 mph in 34.4 sec, while the C-Matic Pallas manages figures of 12.1 sec and 39.7 sec respectively. The flat power curve tails off significantly over 5,500 rpm, and we found it best to change up at 5,800 rpm just as the engine was beginning to sound rather busy and harsh. Below 5,000 rpm it is happy, and still refined by four cylinder standards.



Interestingly, accelerating from rest to 60 mph using second gear only took 14.9 sec, a time comparable with the new 2-litre 0-series Princess and only 2,8 sec longer than when using the gearbox to the full. Just for fun we also tried a standing start in top and still managed to fit 100 mph into the 1-mile horizontal timing straights at MIRA, this time in 52.4 sec. In so doing the quarter mile post passed by in 24.1 sec at a fraction over 60 mph.

On the road there are certainly no quirks involved with using C-Matic; quite the contrary, the system fits in well with the soft, well-damped suspension and general aura of the car. Changing gear is as fast as you can make it, and we were quite unable to beat the clutch or confuse it in any way. Whilst not outstanding, acceleration is relaxed right through to a maximum speed of 111 mph which corresponds to 5,750 rpm, 250 rpm beyond peak power – a calculation that assumes no torque converter slippage.

Throughout our testing the relatively heavy CX Pallas C-Matic Injection was rarely driven with economy in mind. An overall fuel consumption of 20.9 mpg reflects this. It encompassed figures ranging from 16.6 mpg while testing at MIRA to more representative averages around 23 mpg in more normal use - figures that compare remarkably well with the GTi and milder tuned carburettor CX 2400 which managed 21.6 mpg and 23.5 mpg respectively. In practice all three types would return very similar figures, giving an absolute range of something over 300 miles from each 15-gallon tankful of fuel.



*The distinctive Citroen interior is typified by the fascia.*

*The instrument panel reaches forward to house the minor controls at fingertip level.*

*On the left are the indicator, horn and wiper switches. On the right are the dip/main beam, headlight flasher, and light switches.*

*The instrument panel has a row of warning lights underneath which are from left to right; a clock, the speedometer, trip and normal mileage recorder, revcounter, fuel gauge, and battery condition gauge.*

*The oil level sight glass is next to the right hand fascia pocket, and the water temperature gauge alongside the ignition switch.*

*The console itself houses the radio and the eyeball ventilation outlets, map reading light, electric window switches, heated rear window and interior light switches.*

*Behind the gearlever are the heating/ventilation and ride level controls*

## **Steering**

The system was justifiably criticised when it first appeared on the SM, as being over-responsive, with a mere 2 turns from lock to lock, and out of sympathy with suspension frequencies. The CX Pallas retains the Varipower power assisted rack and pinion, but thankfully it is lower geared with 2.5 turns from lock to lock. As on the SM, the degree of assistance diminishes as speed rises and there is the same servo self-centering action that would be of great assistance if a front tyre blew. It is accurate and responsive, but the driver needs as before to "grow into" its character for a couple of days. Any attempts at correcting what appeared to be a slight endemic high speed straight line wander tended to make matters worse. Likewise those converting from more conventional cars will find that the steering has to be unwound just as methodically on the exit of a corner as it is applied on the entry. Cross country and town driving cannot be accomplished by letting the steering unwind through castor action that centres the wheel mechanically, unrelated to road speed or corner radius. However thanks to sensibly low but not over-direct gearing one rarely has to cross one's hand on the steering wheel, and with a little familiarisation and relaxation, the CX Pallas behaves

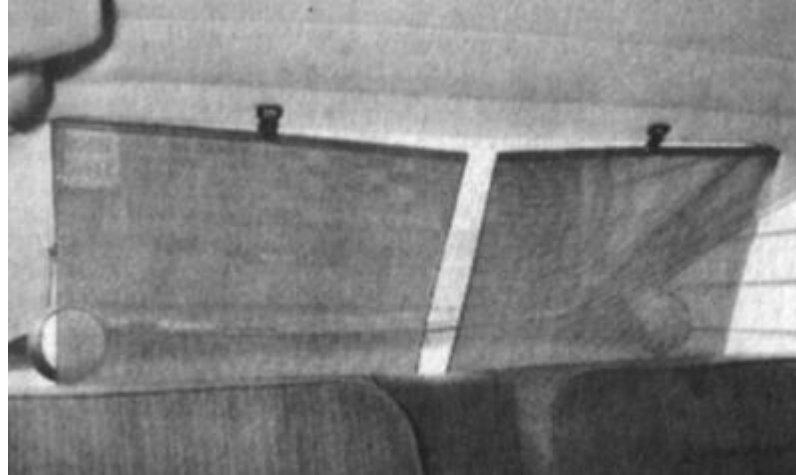
rewardingly. There is then time to assess some of the system's qualities. High gearing and servo self-centering makes parking and low speed manoeuvring a pleasure; the absence of kickback, or transmission of any road shocks through the steering wheel might suggest a lack of feel, but surprisingly the carefully tuned system that loads up mechanically on lock, in sympathy with roll and cornering would be difficult to fault for predictability and sense of the amount of spare tyre adhesion available.



**Above:** The front seats are upholstered in excellent quality tough and "breathing" cloth.

**Right:** Anti dazzle blinds unroll from behind the rear seats which are as luxurious as those in the front.

**Top right:** Notice the detachable cushions on the head restraints, and the knee "holes" in the back of the front seats.



### **Ride, Handling and Roadholding**

Citroen hydropneumatic suspension is as unique as its self-levelling and bump absorption characteristics. Load the rear of the CX Pallas down with the engine stationery and it will sag sadly. Pressurise the hydraulic nitrogen-filled suspension units with a running engine and the rear soon pumps itself into the correct attitude. There is provision, via a lever between the front seats, to raise the ride height in two stages, the highest for changing a wheel, and the other which leaves a little droop travel available, for running slowly over rough terrain.

Under normal fast driving conditions the suspension's ability to soak up large undulations and yet damp out rough surfaces is extraordinary; as remarkable as the consistency of ride, empty, or fully laden. There seems to be no limit to the amount of suspension travel, and the impression at the limit of bump is only of a rapid rise in spring rate, rather than the bang that would accompany the conventional car's suspension hitting the bump stops, Even in extremis control is there and steering unaffected, no doubt helped by zero camber change front and rear.

Although road noise levels are subdued, there are occasions when one wheel drops into a pothole or hits a sharp bump that can catch the springing out, producing thump through the bodyshell. Also it is occasionally possible to confuse the self-levelling correctors by taking a hump or brow rather too fast. On landing the front of the car will tend to stay on droop or pumped up for a moment or two. However you have to go looking for this sort of thing and at sensible speeds ride can hardly be faulted.

Despite having nearly 70 per cent of its weight over the front wheels, the CX Pallas does not suffer unduly from understeer. On the one hand one never feels the desire to go rushing into corners, and yet considerable roadholding reserves are there if required, especially in the wet. Unlike some front-wheel drive cars that have a tendency toward total front end washout, the CX Pallas goes

on responding to the steering once mild understeer has been established, and claws its way through the corner. Pouring on too much lock in itself scrubs off speed and in turn mitigates the understeer. Alternatively lifting off will restore matters to a more neutral state.

Roll as always with a Citroen is considerable, but not offputting, because it gives the driver warning of imminent loss of adhesion, and progressive breakaway.

Unaided, hydropneumatic suspension offers little in the way of roll stiffness, consequently anti-roll bars do most of this work, which naturally leads to a rapid rise in cornering spring rates. This and the normal wheel-to-wheel interference that anti-roll bars produce can cause a rocking motion while cornering hard over undulating surfaces. Once again it is hardly discernable on the road and is neither upsetting nor leads to any apparent loss in the very high cornering power.

During the maximum speed runs at MIRA we felt that the steering was still a little too responsive in relation to the compliant suspension. The transition from running straight ahead to turning into the banking producing a floating motion until the car was settled into the corner. Perhaps the speed involved makes criticism of this kind seem irrelevant, but it is as if the low frequency response of the chassis still gets out of synchronisation with small quick corrections to the steering.

Overall the CX Pallas's ride handling and roadholding qualities far outweigh the niggles. It is a responsive car that insulates the occupants commendably from the outside world, and feels directionally more stable the faster one travels.





*Citroen Pallas details from left to right: The distance between the steering wheel rim and minor controls is about three inches. The indicator switch on the top of the "horn" is not self-cancelling.*

*The heater/ventilation and ride level controls (centre) are between the front seats. Moving the single lever forward raises the car, and back lowers it.*

*The Pallas has an electrically operated driving door mirror as standard. It is operated from the toggle switch on the door sill*

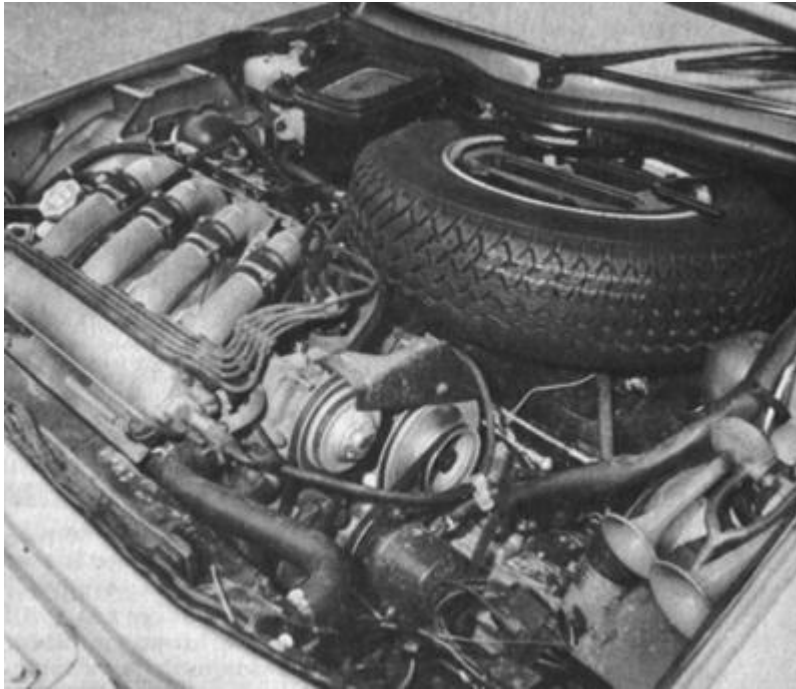
## **Brakes**

The high pressure hydraulic system not only serves the suspension and steering, but also the brakes. Conventional braking systems depend on operating the brake pedal to build up pressure at the wheel cylinders, with or without the assistance of a servo. Citroen have fluid already under very high pressure for the steering and suspension, and can simply tap it for braking. Naturally this results in rapid response to driver action. Pedal pressures are perhaps over-light, and because of the concept, there is absolutely no "spare" pedal movement. Like the rest of the car it takes a little time to acclimatise, and learn the art of smooth braking. Initially very responsive, the brakes are nevertheless progressive, with pedal' pressure ranging from only 10lb giving 0.29 retardation, to 50lb for the optimum 0.97g stop.

Fortunately C-Matic transmission renders heel-and-toe gearchanges less relevant, whereas with the manual GTi, uneven braking can result from using the overlight brake pedal as a pivot for opening the throttle.

Throughout our 10 fade-searching stops from 75 mph, pedal pressures rose slightly and there was some pad smell during the last five runs. However, there was no suggestion of fade, and almost no pitch thanks to anti-dive front suspension geometry. The remarkably effective

handbrake operates on the front wheels. It managed an almost unbeatable 0.42g deceleration and easily held the CX Pallas C-Matic on a 1 in 3 slope, from which a restart could be made with contemptuous ease.



*A crowded underbonnet is nevertheless neatly laid out. The injection control equipment is behind the four injection pipes. The air intake to the left of the spare wheel is to serve the heating/ventilation. Battery aside, day to day maintenance items are easy to check, and the all-important drive belts easy to reach. The central hydraulic reservoir is just out of the picture to the right rear of the bonnet opening. The wheel changing equipment is housed in the centre of the wheel itself. The battery is covered and under the two right hand inner wing mounted air horns, which makes it awkward to check*



*For a non-hatchback the boot is usefully large and uncluttered, thanks to the spare wheel being housed under the bonnet. The boot is illuminated, and the door is held open by a gas strut. A low sill makes loading luggage relatively easy.*

## Comfort and controls

The interior is as positive in design as the outside. Replacing the more conventional dash and minor controls is a semi-circular moulding that not only houses the, to us, irritating rotating drum speedometer and rev-counter, warning lights, clock and fuel gauges, but reaches forward toward the steering wheel. At its outer ends sit, on the left, the horn button, wiper switch, and non self-cancelling indicator rocker switch. On the right are the headlamp flasher button, dip/main beam rocker switch, headlight switch and panel light dimmer. With one's hands on the steering wheel at "ten to two" all these can be operated by fingertip but only with the steering pointing straight ahead. By the time one has become familiar with the other unusual features of the CX Pallas the minor controls have fallen into place, and their operation becomes second nature. The press button oil level sight glass proved accurate enough, and opposite it under the left-hand side of the instrument panel is the water temperature gauge.

The fascia itself comprises an expanse of curved moulded plastic, with unfortunately no provision for retaining travelling paraphernalia. Reflections in the screen (thankfully laminated) might have prompted this, and it is left to a fairly large glove box and small semi-circular door pockets to provide stowage. Electric front door windows and driving door mirror are standard fitments.

The driver sits well positioned, and over the sloping bonnet forward visibility is good. However when manoeuvring in a tight space it can be difficult to judge accurately how much front bodywork is out of sight.

Some thought the sumptuous herringbone pattern cloth-covered front seats a little soft but there were no actual complaints of driving fatigue. Although there is plenty of head-room, leg room in the rear is only just adequate for a tall person unless your knees are low enough to fit into the thoughtfully provided hollows in the back of the front seats.

Although five can survive for a long journey, the CX Pallas is far more suited to carrying four people very comfortably with the rear seat centre armrest folded down; comfortably that is, but for a surprisingly poor ventilation system. Three levers between the front seats, control heat, fresh air, and the fan. Whilst there is no shortage of heat, the amount of fresh air available is disappointing (the test period was hot). Even at motorway speeds little ram airflow is available, and considerable noisy fan assistance is needed to push enough fresh air through. Naturally running with open windows disturbs otherwise serene cruising, and on balance we found it was better to suffer in silence.

Ventilation aside, living conditions are well up to standard, and include some nice practical touches, like the soft detachable head restraint cushions, rear side window sun visors, rear blinds, and excellent courtesy and map reading lights. On full beam the halogen headlights too are entirely up to the performance of the car, but illumination tends to be rather diffused when they are on dip beam.

## **Living with the CX 240 (*sic*) Pallas injection**

The potential CX Pallas C-Matic Injection owner who already knows the type is usually as committed as the people who make it. Those sitting on the sidelines will always ask what happens if the hydraulic electrically operated clutch or electronic fuel injection go wrong? Citroen guarantee the hydropneumatic suspension for two years or 65,000 miles, while the rest of the car is covered by a 12 month, unlimited mileage guarantee. Citroen have a good record for customer service, and service intervals, apart from an interim oil change at 5,000 mile intervals, are every 10,000 miles. Day-to-day maintenance is straightforward - in fact the bonnet hardly needs to be opened, since the oil level can be checked from inside the car. Only the battery buried in the left-hand wing is awkward to check.

The spare wheel site between the engine and bulkhead under the bonnet, which must help in the provision of a large uncluttered boot (larger than a Lancia Gamma but 2 cu. ft. smaller than a Ford Granada), and clean rear underbody.

The heart of any Citroen CX is of course the high pressure hydraulic pump. It is driven from the front of the engine by a conventional and very substantial V belt. Should it fail, there is enough pressure in the hydraulic accumulator to steer and stop safely. In fact a priority valve dictates that the suspension sags first followed by the steering becoming very heavy - neither disastrous, and both giving plenty of warning of hydraulic failure, over some miles. However, it would seem sensible for the high mileage owner to carry a spare belt and the necessary tools to change it, because life being what it is, such a failure would be bound to occur in the early hours of the morning miles from civilisation.

## **Where it fits in**

The CX Pallas C-Matic Injection is almost the most expensive CX available at a little under £7,000 on the road, compared with the most basic 2-litre four-speed manual carburettor model at nearly £5,000. Comparing like with like is difficult because only the more expensive (£7,136) and far less sophisticated Lancia Gamma shares the same conception. On the other hand the Rover 2300/2600 and Renault 30TS have the advantage of being dual purpose hatchback vehicles and less expensive (then the "up market Pallas" at least). In fact, by specifying C-Matic transmission at £176 extra on the CX 2400 Super the price remains well under £6,000 which makes the car far more competitive in the class. It's a question of how much value one puts on luxury trim.

## **Conclusions**

As we have suggested the CX Pallas 2400 C-Matic Injection is outstanding aerodynamically whether you like its appearance or not. We do. It has the positive style that we have come to expect from Citroen and which one is likely to love or dismiss. The C-Matic semi-automatic transmission's smoothness compliments the CX character exactly and gives a unique combination of driver control and all the benefits of

clutchless operation. Those who are sympathetic to its extraordinary ride/roadholding/braking combination are unlikely to be put off by the lack of equally good ventilation (a short-coming receiving attention at the moment), the instruments or the short period of acclimatisation required in the driving seat. However humans, or the car buying variety, are conservative by nature. When hard earned cash has to be spent, secondhand values have to be considered. Citroen's complexity and sophistication has traditionally frightened the market, consequently it is in this area if anywhere, that some sacrifice might have to be made by the potential Citroen CX Pallas C-Matic Injection owner.

**MANUFACTURER:**

Automobiles Citroen  
133, Quai Andre Citroen  
75075 Paris  
France

**UK CONCESSIONAIRES:**

Citroen Cars,  
Mill Street,  
Slough,  
Buckinghamshire,  
SL2 5DE.

**PRICES**

Basic £5,809.00  
Special Car Tax £484.08  
VAT £503.45  
**Total (in GB) £6,796.53**  
Seat Belts Standard  
Licence £50.00  
Delivery charge (London) £68.04  
Number plates £10.00  
**Total on the Road £6,924.57**  
(exc. insurance)  
Insurance Group 7

**EXTRAS (inc. VAT)**

Electric sun roof £315.90  
Air conditioning £407.16  
Leather upholstery £360.36  
\* Radio/Cassette player £98.00  
\* *Fitted to test car*

**TOTAL AS TESTED ON THE ROAD £7,022.57**

## Specifications

|               |                              |
|---------------|------------------------------|
| <b>ENGINE</b> | Transverse front wheel drive |
| Cylinders     | 4                            |
| Main bearings | 5                            |
| Cooling       | Water                        |

## Maximum speeds

| <b>Gear</b> | <b>mph</b> | <b>kph</b> | <b>rpm</b> |
|-------------|------------|------------|------------|
| Top (mean)  | 111        | 179        | 5,750      |
| Top (best)  | 113        | 182        | 5,875      |
| 2nd         | 82         | 131        | 6,000      |

|                             |   |              |
|-----------------------------|---|--------------|
| Fan                         | Electric  |              |
| Bore mm (in.)               | 93.5 (3.68)   |              |
| Stroke mm (in.)             | 85.5 (3.37)   |              |
| Capacity cc (in.)           | 2,347 (143)   |              |
| Valve gear                  | Ohv   |              |
| Camshaft drive              | Chain   |              |
| Compression ratio           | 8.75 to 1   |              |
| Octane rating               | 97 RM   |              |
| Fuel injection              | Bosch L-Jetronic  |              |
| Max. power                  | 128 bhp (DIN) at 4,800 rpm  |              |
| Max. torque                 | 145 lb ft (DIN) at 3,600 rpm  |              |
| <b>TRANSMISSION</b>         |   |              |
| Type                        | 3-speed C-Matic (two shaft) with torque convertor and manual gear selection |              |
|                             | Ratio   | mph/1000 rpm |
| Gear                        |   |              |
| Top                         | 0.80  | 19.2         |
| 2nd                         | 1.13  | 13.6         |
| 1st                         | 1.94  | 7.9          |
| Final drive                 | Helical spur  |              |
| Gear ratio                  | 4.77 to 1   |              |
| <b>SUSPENSION</b>           |   |              |
| Front - location            | Double transverse arm   |              |
| Front - springs and dampers | Hydropneumatic spring damper units  |              |
| Front - anti-roll bar       | Yes   |              |
| Rear - location             | Trailing arms   |              |
| Rear - springs and dampers  | Hydropneumatic spring damper units  |              |
| Rear - anti-roll bar        | Yes   |              |
| <b>STEERING</b>             |   |              |

1st 48 77 6,000

## Acceleration

| True mph | Time (secs) | Top  | Inter | Speedo mph |
|----------|-------------|------|-------|------------|
| 30       | 4.1         | 7.8  | 5.0   | 30         |
| 40       | 5.9         | 12.1 | 8.3   | 41         |
| 50       | 8.8         | 17.0 | 11.4  | 52         |
| 60       | 12.2        | 22.6 | 14.8  | 62         |
| 70       | 15.9        | 28.3 | 18.8  | 72         |
| 80       | 21.7        | 34.5 | 25.1  | 83         |
| 90       | 29.2        | 41.9 | -     | 94         |
| 100      | 39.6        | 52.5 | -     | 105        |

**Standing 1/4 mile 18.7 secs 75 mph**

**Standing kilometre 33.9 secs 95 mph**

| mph     | Top  | 2nd  | 1st |
|---------|------|------|-----|
| 10-30   | 6.7  | 5.0  | 3.2 |
| 20-40   | 8.3  | 6.2  | 3.6 |
| 30-50   | 9.1  | 6.4  | -   |
| 40-60   | 10.7 | 6.5  | -   |
| 50-70   | 11.7 | 7.4  | -   |
| 60-80   | 12.5 | 10.3 | -   |
| 70-90   | 14.6 | -    | -   |
| 80-100  | 19.2 | -    | -   |
| 90-110  | -    | -    | -   |
| 100-120 | -    | -    | -   |

## Consumption

**Fuel Overall mpg 20.9 (13.6 litres/100 km)**

**Constant speed** *Measuring equipment not compatible with fuel injection*

**Official fuel consumption figures**

|                      |                                |
|----------------------|--------------------------------|
| Type                 | Rack and pinion                |
| Power assistance     | Yes plus power self-centering  |
| Wheel diameter       | 15.0 in.                       |
| <b>BRAKES</b>        |                                |
| Front                | 10.2 in dia disc               |
| Rear                 | 9.2 in dia disc                |
| Servo                | High pressure hydraulic system |
| <b>WHEELS</b>        |                                |
| Type                 | Pressed steel                  |
| Rim width            | 5 1/2 in J                     |
| Tyres - make         | Michelin                       |
| Tyres - type         | XVS radial ply                 |
| Tyres - size         | 185 HR 14                      |
| <b>EQUIPMENT</b>     |                                |
| Battery              | 12 volt 60 Ah                  |
| Alternator           | 80 amp                         |
| Headlamps            | Halogen 110/120 watts (total)  |
| Reversing lamp       | Standard                       |
| Hazard warning       | Standard                       |
| Electric fuses       | 6                              |
| Screen wipers        | 2 speed plus intermittent      |
| Screen washers       | Electric                       |
| Interior heater      | Water valve                    |
| Interior trim        | Cloth seats, PVC headlining    |
| Floor covering       | Carpet                         |
| Jack                 | Screw pillar                   |
| Jacking points       | 2 each side under sills        |
| Windscreen           | Laminated                      |
| Underbody protection | Paint and wax                  |
| <b>MAINTENANCE</b>   |                                |
| Fuel tank            | 15.0 imp galls (68 litres)     |
| Cooling system       | 22.0 pints (inc heater)        |

(ECE laboratory test conditions: not necessarily related to *Autocar* figures)

|               |  |
|---------------|--|
| Urban cycle   | 19.0 mph ( <i>sic - it should be mpg</i> ) |
| Steady 56 mph | 31.0 mpg                                   |
| Steady 75 mph | 24.6 mpg                                   |

**Autocar formula**

|                                    |          |
|------------------------------------|----------|
| Hard driving difficult conditions  | 18.8 mpg |
| Average driving average conditions | 23.0 mpg |
| Gentle driving easy conditions     | 27.2 mpg |

**Grade of fuel**

Premium 4 star (97 RM)

Mileage recorder

1.5 per cent over-reading

**Oil**

Consumption (SAE 20/50) 1000 miles per pint

## Brakes

**Fade** (*from 75 mph in neutral*)

|   |       |    |       |
|---|-------|----|-------|
| 1 | 26-29 | 6  | 38-70 |
| 2 | 28-34 | 7  | 38-52 |
| 3 | 30-40 | 8  | 40-55 |
| 4 | 35-55 | 9  | 40-50 |
| 5 | 35-65 | 10 | 40-50 |

**Response** (*from 30 mph in neutral*)

| Load      | g    | Distance |
|-----------|------|----------|
| 10lb      | 0.20 | 150ft    |
| 20lb      | 0.43 | 70ft     |
| 30lb      | 0.59 | 51ft     |
| 40lb      | 0.82 | 37ft     |
| 50lb      | 0.97 | 31ft     |
| Handbrake | 0.42 | 72ft     |

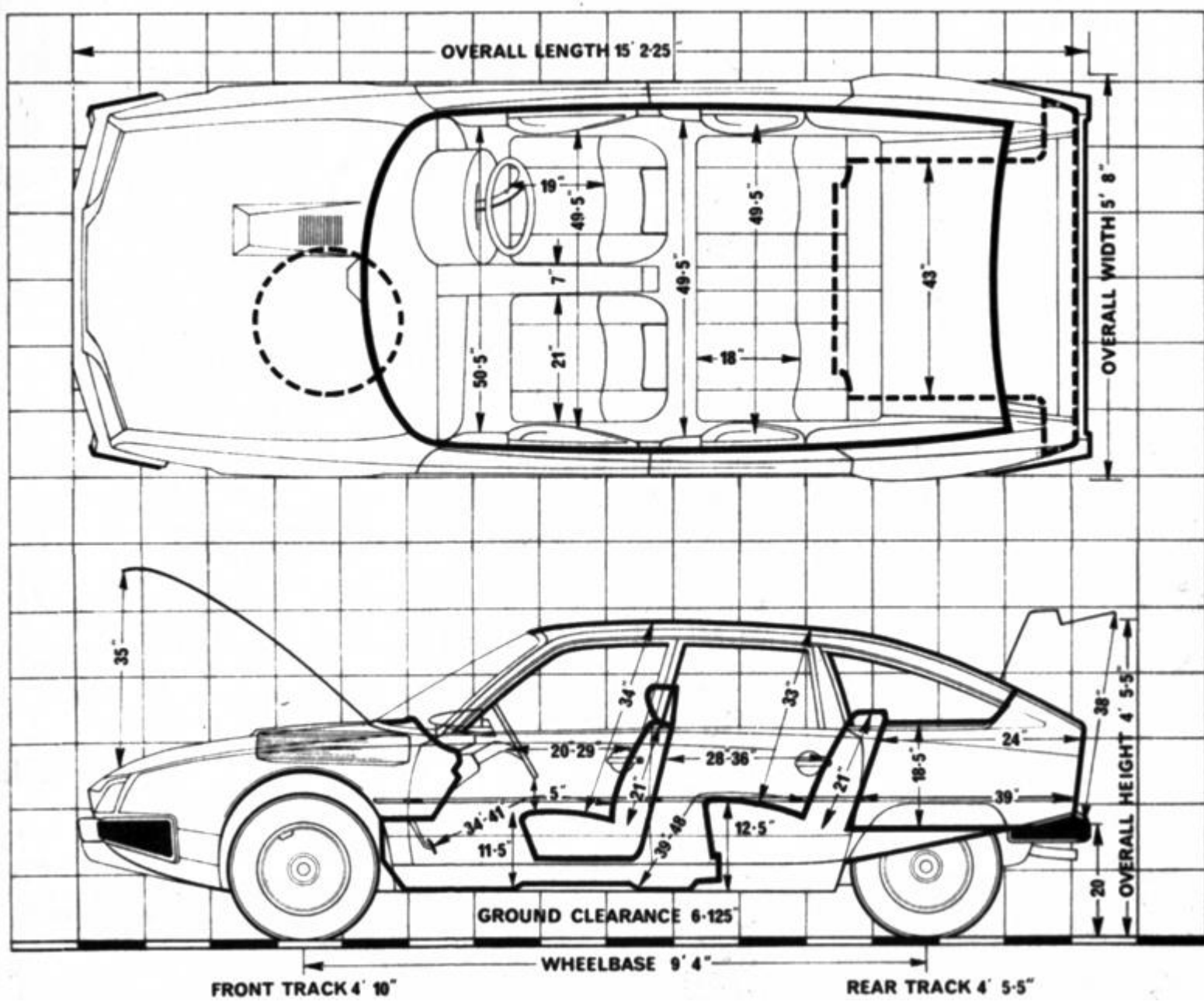
|                         |  |
|-------------------------|--|
| Engine sump             | 8.0 pints SAE 20/50                              |
| Gearbox and final drive | 2.8 pints SAE 80EP                               |
| Grease                  | No points  |
| Valve clearance         | Inlet 0.006 in (cold)<br>Exhaust 0.008 in (cold) |
| Contact breaker         | Electronic breakerless                           |
| Ignition timing         | 25 deg BTDS (stroboscopic at 2,500 rpm)          |
| Spark plug - type       | Champion L87Y or equivalent                      |
| Spark plug - gap        | 0.026 in   |
| Tyre pressures          | F 30 R 32 psi (normal driving)                   |
| Max payload             | 1,047 lb (475 kg)                                |

Max gradient 1 in 3

## Test conditions

Wind 10-12 mph  
Temperature 27 deg C (80 deg F)  
Barometer 29.8 in Hg  
Humidity 40 per cent  
Surface dry asphalt and concrete  
Test distance 1,251 miles  
*Figures taken at 6,947 miles by our own staff at the Motor Industry Association proving ground at Nuneaton*





## Comparisons

|                                      | Price (£)    | max mph    | 0-60 (sec)  | overall mpg | capacity (cc) | power (bhp) | wheelbase (in) | length (in)  | width (in)  | kerb wt (lb) | fuel (gal) | tyre size       |
|--------------------------------------|--------------|------------|-------------|-------------|---------------|-------------|----------------|--------------|-------------|--------------|------------|-----------------|
| <b>Citroën CX Pallas C/matic inj</b> | <b>6,797</b> | <b>111</b> | <b>12.2</b> | <b>20.9</b> | <b>2,347</b>  | <b>128</b>  | <b>112.0</b>   | <b>181.0</b> | <b>68.0</b> | <b>3,073</b> | <b>15</b>  | <b>185 HR14</b> |
| Lancia Gamma Berlina                 | 7,136        | 118        | 10.1        | 19.1        | 2,484         | 140         | 105.0          | 180.5        | 68.0        | 3,052        | 13         | 185/70HR14      |
| Audi 100 5E                          | 6,020        | 109        | 11.8        | 23.3        | 2,144         | 136         | 105.5          | 184.5        | 69.5        | 2,632        | 13.2       | 185/70-14       |
| Rover 2300                           | 5,645        | 111        | 11.9        | 22.0        | 2,350         | 123         | 110.5          | 185.0        | 69.0        | 2,954        | 14.5       | 175/14          |
| Renault 30 TS (S)                    | 6,476        | 111        | 11.7        | 20.2        | 2,664         | 131         | 105.0          | 178.0        | 68.0        | 2,853        | 14.7       | 175/14HR        |
| Princess 2200 (A)                    | 4,871        | 98         | 14.2        | 21.8        | 2,227         | 110         | 105.0          | 175.5        | 68.0        | 2,677        | 16.0       | 185/70-14       |
| Ford Granada 2.3 GL (A)              | 5,734        | 98         | 14.5        | 20.6        | 2,293         | 108         | 109.0          | 187.0        | 70.5        | 2,932        | 14.3       | 185-14          |

## Regular service

| Interval          | 5,000         | 10,000        | 30,000        |
|-------------------|---------------|---------------|---------------|
| <b>Change</b>     | <b>5,000</b>  | <b>10,000</b> | <b>30,000</b> |
| Engine oil        | Yes           | Yes           | Yes           |
| Oil filter        | Yes           | Yes           | Yes           |
| Gearbox oil       | No            | No            | Yes           |
| Spark plugs       | No            | Yes           | Yes           |
| Air cleaner       | No            | No            | Yes           |
| C/breaker         | N/A           | N/A           | N/A           |
| <b>Total cost</b> | <b>£11.38</b> | <b>£61.58</b> | <b>£83.24</b> |

(Assuming labour at £6.50 per hour)

## Parts cost

| <i>(including VAT)</i>           |        |
|----------------------------------|--------|
| Brake pads (2 wheels) - front    | £16.90 |
| Brake pads (2 wheels) - rear     | £12.91 |
| Exhaust system complete          | £60.50 |
| Tyre - each (typical advertised) | £46.00 |
| Windscreen (laminated)           | £94.90 |
| Headlamp unit                    | £42.98 |
| Front wing                       | £32.41 |
| Front bumper                     | £76.57 |

**Warranty period** 12 months/unlimited mileage

## Weight

**Weight**  
 Kerb 27.4 cwt/3,073lb/1,395 kg  
 (distribution F/R, 68.5/31.5)  
 As tested 30.8 cwt/3,452lb/1,568 kg

## Test scorecard

(Average of scoring by Autocar Road Test team)

**Ratings:**  
 6 Excellent

**Boot capacity:** 16.8 cu ft

**Turning circles**

Between kerbs

L 35ft 9in R 35ft 4in

Between walls L 38ft 8in R 38ft 6in

Turns lock to lock 2.5

5 Good

4 Above average

3 Below average

2 Poor

1 Bad

|  |     |
|--|-----|
| PERFORMANCE  | 4.7 |
| STEERING AND HANDLING  | 4.7 |
| BRAKES   | 4.4 |
| COMFORT IN FRONT   | 4.4 |
| COMFORT IN BACK  | 4.4 |
| DRIVERS AIDS ( <i>instruments, lights, wipers, visibility, etc</i> ) | 4.3 |
| CONTROLS   | 4.3 |
| NOISE  | 4.5 |
| STOWAGE  | 4.0 |
| ROUTINE SERVICE ( <i>under-bonnet access - dipstick, etc.</i> )      | 4.3 |
| EASE OF DRIVING  | 4.4 |

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